

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE M - FPAF		PAGE OF PAGES 1 of 3	
2. AMENDMENT/MODIFICATION NO. P00062		3. EFFECTIVE DATE <b>24 JUN 2003</b>		4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE		5. PROJECT NO. (If applicable)	
6. ISSUED BY ASC/ENVK CODE USAF/AFMC AERONAUTICAL SYSTEMS CENTER BLDG. 1801 10TH STREET SUITE 2 WRIGHT-PATTERSON AFB OH 45433-7626 GAIL M. PORUMB (937) 255-3187 GAIL.PORUMB@WPAFB.AF.MIL		7. ADMINISTERED BY (If other than item 6) CODE AF PLANT 42 ASC/DET 1 (AFMC) 2503 EAST AVENUE P PALMDALE CA 93550-2196					
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) PYRAMID SERVICES, INC 115 SOUTH FLORIDA AVE ALAMOGORDO NM 88310 (505) 434-0239				<b>MAILING DATE</b>		9A. AMENDMENT OF SOLICITATION NO.	
				<b>JUN 24 2003</b>		9B. DATED (SEE ITEM 11)	
						10A. MODIFICATION OF CONTRACT/ORDER NO. F33657-99-C-0021	
						10B. DATED (SEE ITEM 13) 28 APR 2000	
CODE OTLA5		FACILITY CODE					
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. <b>FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER.</b> If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required) SEE SCHEDULE							
<b>13. THIS ITEM APPLIES ONLY TO MODIFICATION OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
(X) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: ( ) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. ITEM 10A. B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b). X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Special Contract Requirement AFMCPK-H8 and 52.243-2 Changes -- Cost Reimbursement D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor is not, <input checked="" type="checkbox"/> is required to sign this document and return 1 copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) SUBJECT: Establish CLIN 0062 to Purchase FY 03 Approved Vehicles, including R-11 Refueler Vehicle, Project TTQK02CF20  CHANGE IN ESTIMATED COST: \$263,000.00 (Increase) CHANGE IN OBLIGATION: \$263,000.00 (Increase)							
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print) <b>Victor L. Hurson</b>				16A. NAME AND TITLE OF SIGNER (Type or print) GAIL M. PORUMB Contracting Officer			
15B. CONTRACTOR/OFFEROR  <i>Victor L. Hurson</i> (Signature of person authorized to sign)		15C. DATE SIGNED <b>6/9/03</b>		16B. UNITED STATES OF AMERICA  <i>Gail M. Porumb</i> BY (Signature of Contracting Officer)		16C. DATE SIGNED <b>23 June 03</b>	

1. The above numbered contract is hereby modified in accordance with Special Contract Requirement AFMCPK-H8 "Provisions for Materials, Supplies, Parts, Utilities and Equipment" and FAR 52.243-2, "Changes", to authorize the Contractor to purchase FY 03 Financial Plan approved vehicles, including one R-11 Refueler at an increase of \$263,000.00 in the estimated cost of the contract. CLIN 0062 is established for this effort.

2. As a result of paragraph 1 above, the subject contract is specifically modified as follows:

a. SECTION B - SUPPLIES OR SERVICES:

ITEM	SUPPLIES OR SERVICES	Qty Purch Unit	Unit Price Total Item Amount
<b>0062</b>	CLIN Establish	1	\$263,000.00
		Lot	\$263,000.00
	<i>Noun:</i> FY 03 VEHICLES <i>ACRN:</i> BG <i>NSN:</i> N - Not Applicable <i>Contract type:</i> S - COST <i>Inspection:</i> DESTINATION <i>Acceptance:</i> DESTINATION <i>FOB:</i> DESTINATION		
	<i>Descriptive Data:</i> The Contractor shall purchase FY 03 vehicles, including an R-11 Refueler as described in Commercial Item Description, dated 19 Jun 03, as attached in Section J, Attachment 20. Prior to final selection of the vendor, the Contractor shall coordinate the purchase with the ACO, who has final approval authority. Additional vehicles shall be purchased only under the written direction of the PCO via modification to the contract.		

Project # TTQK02CF20 is assigned to this effort.

b. SECTION F - DELIVERIES OR PERFORMANCE:

ITEM	SUPPLIES SCHEDULE DATA	QTY	SHIP TO	MARK FOR	TRANS PRI	DATE
0062		1	EY1443			24 MARO
	Noun:		FY 03 VEHICLES			
	ACRN:		BG			

## c. SECTION G - CONTRACT ADMINISTRATION/PAYMENT DATA:

1) Contractor may bill incrementally to the government based on ACO concurrence coinciding with partial payments to the vendor.

2) ACRN BG is established as follows:

ACRN	Appropriation/Lmt Subhead/Supplemental Accounting Data	Obligation Amount
BG	ACRN Establish 57 33080 173 36E8 82399B 000000 00000 000035 672300 F0330L New ACRN Amount: \$263,000.00 Funding breakdown: On CLIN 0062: +\$263,000.00 PR/MIPR: FD2060YA327078 \$263,000.00	\$263,000.00

## d. SECTION H - SPECIAL CONTRACT REQUIREMENTS:

*The following clauses are changed in Section H:*

**NAPS AFMCPK-H8 PROVISIONS FOR MATERIALS, SUPPLIES, PARTS, UTILITIES AND EQUIPMENT (CLINS 0005, 0044, 0051, 0054, 0062 AND OPTION CLINS 0011, 0017, 0023, 0029, 0035) (Jun 2003)**

## e. SECTION J - ATTACHMENTS:

*The following attachment/exhibit(s) are modified in Section J:*

**Attachment 8 Funding Recapitulation by ACRN**

*The following attachment/exhibit(s) are added to Section J:*

**Attachment 20 COMMERCIAL ITEM DESCRIPTION (CID) TRUCK, TANK, AIRCRAFT REFUELING, 6000 GALLON, A/S32R-11**

3. This Supplemental Agreement constitutes a full and equitable adjustment and the Contractor releases the Government from any and all liability under the contract for further equitable adjustments arising out of or in connection with the changes effected hereby.

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00001	0001		15-Jun-00	\$30,600.00	\$30,600.00	AA	<b>\$30,600.00</b>	\$30,600.00	\$30,600.00
P00002	0002	00201	31-Jul-00	\$5,690,509.00	\$1,456,231.00	AB	\$1,456,231.00	\$5,721,109.00	\$1,486,831.00
P00002	0002	00202	31-Jul-00		\$792,714.00	AC	\$792,714.00	\$5,721,109.00	\$2,279,545.00
P00002	0003	00301	31-Jul-00	\$2,706,173.00	\$696,464.00	AB	\$2,152,695.00	\$8,427,282.00	\$2,976,009.00
P00002	0003	00302	31-Jul-00		\$373,041.00	AC	<b>\$1,165,755.00</b>	\$8,427,282.00	\$3,349,050.00
P00002	0005	00501	31-Jul-00	\$810,000.00	\$329,633.00	AB	\$2,482,328.00	\$9,237,282.00	\$3,678,683.00
P00002	0006	00601	31-Jul-00	\$190,000.00	\$77,000.00	AB	\$2,559,328.00	\$9,427,282.00	\$3,755,683.00
P00002	0007	00701	31-Jul-00	\$240,754.00	\$95,148.00	AB	\$2,654,476.00	\$9,668,036.00	\$3,850,831.00
P00002	0008	00801	31-Jul-00	\$240,754.00	\$95,148.00	AB	\$2,749,624.00	\$9,908,790.00	\$3,945,979.00
P00003	0042		21-Sep-00	\$46,800.00	\$10,000.00	AD	<b>\$10,000.00</b>	\$9,955,590.00	\$3,955,979.00
P00004	0006	00601	21-Sep-00	\$0.00	\$75,230.00	AB	\$2,824,854.00	\$9,955,590.00	\$4,031,209.00
P00005			8-Nov-00	\$0.00	\$0.00			\$9,955,590.00	\$4,031,209.00
P00006	0043		29-Sep-00	\$1,600.00	\$1,600.00	AE	<b>\$1,600.00</b>	\$9,957,190.00	\$4,032,809.00
P00007	0005	00501	29-Sep-00	\$0.00	\$100,000.00	AB	<b>\$2,924,854.00</b>	\$9,957,190.00	\$4,132,809.00
P00008	0044		30-Oct-00	\$287,000.00	\$287,000.00	AF	<b>\$287,000.00</b>	\$10,244,190.00	\$4,419,809.00
P00009	0002	00203	22-Nov-00	\$0.00	\$1,170,000.00	AG	\$1,170,000.00	\$10,244,190.00	\$5,589,809.00
P00009	0003	00303	22-Nov-00	\$0.00	\$555,000.00	AG	\$1,725,000.00	\$10,244,190.00	\$6,144,809.00
P00009	0005	00502	22-Nov-00	\$0.00	\$47,575.00	AG	\$1,772,575.00	\$10,244,190.00	\$6,192,384.00
P00009	0007	00702	22-Nov-00	\$0.00	\$49,500.00	AG	\$1,822,075.00	\$10,244,190.00	\$6,241,884.00
P00009	0008	00802	22-Nov-00	\$0.00	\$49,500.00	AG	\$1,871,575.00	\$10,244,190.00	\$6,291,384.00
P00010	0003	00304	28-Nov-00	\$0.00	\$130,000.00	AH	<b>\$130,000.00</b>	\$10,244,190.00	\$6,421,384.00

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00011	0002	00203	22-Jan-01	\$0.00	\$2,271,564.00	AG	\$4,143,139.00	\$10,244,190.00	\$8,692,948.00
P00011	0003	00303	22-Jan-01	\$0.00	\$951,668.00	AG	\$5,094,807.00	\$10,244,190.00	\$9,644,616.00
P00011	0005	00502	22-Jan-01	\$0.00	\$332,792.00	AG	\$5,427,599.00	\$10,244,190.00	\$9,977,408.00
P00011	0006	00602	22-Jan-01	\$0.00	\$37,770.00	AG	\$5,465,369.00	\$10,244,190.00	\$10,015,178.00
P00011	0007	00702	22-Jan-01	\$0.00	\$96,106.00	AG	\$5,561,475.00	\$10,244,190.00	\$10,111,284.00
P00011	0008	00802	22-Jan-01	\$0.00	\$96,106.00	AG	\$5,657,581.00	\$10,244,190.00	\$10,207,390.00
P00012			19-Mar-01		\$0.00		<b>\$0.00</b>	\$10,244,190.00	\$10,207,390.00
P00013	0040	004001	29-Mar-01	\$116,733.00	\$116,733.00	AJ	<b>\$116,733.00</b>	\$10,360,923.00	\$10,324,123.00
P00013	0040	004002	29-Mar-01	\$18,571.00	\$18,571.00	AK	\$18,571.00	\$10,379,494.00	\$10,342,694.00
P00014	0045		9-Apr-01	\$1,000.00	\$1,000.00	AM	<b>\$1,000.00</b>	\$10,380,494.00	\$10,343,694.00
P00015	0046		23-Apr-01	\$4,929.00	\$4,929.00	AL	<b>\$4,929.00</b>	\$10,385,423.00	\$10,348,623.00
P00016			20-Jun-01		\$0.00		<b>\$0.00</b>	\$10,385,423.00	\$10,348,623.00
P00017	0047			\$8,564.00	\$8,564.00	AP	\$8,564.00	\$10,393,987.00	\$10,357,187.00
P00018			29-Jun-00		\$0.00		<b>\$0.00</b>	\$10,393,987.00	\$10,357,187.00
P00019	0009		29-Jun-00	\$6,006,242.00				\$16,400,229.00	\$10,357,187.00
P00019	0009	000901	29-Jun-00		\$1,005,177.00	AN	<b>\$1,005,177.00</b>	\$16,400,229.00	\$11,362,364.00
P00019	0009	000902	29-Jun-00		\$1,697,632.00	AG	\$7,355,213.00	\$16,400,229.00	\$13,059,996.00
P00019	0010		29-Jun-00	\$2,955,600.00	\$1,355,143.00	AG	\$8,710,356.00	\$19,355,829.00	\$14,415,139.00
P00019	0011		29-Jun-00	\$810,000.00	\$374,896.00	AG	\$9,085,252.00	\$20,165,829.00	\$14,790,035.00
P00019	0012		29-Jun-00	\$190,000.00	\$90,626.00	AG	\$9,175,878.00	\$20,355,829.00	\$14,880,661.00
P00019	0013		29-Jun-00	\$262,310.00	\$120,269.00	AG	\$9,296,147.00	\$20,618,139.00	\$15,000,930.00

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00019	0014		29-Jun-00	\$262,310.00	\$120,269.00	AG	\$9,416,416.00	\$20,880,449.00	\$15,121,199.00
P00020	0039	0039AA	28-Sep-01	\$46,475.00	\$46,475.00	AP	<b>\$55,039.00</b>	\$20,926,924.00	\$15,167,674.00
P00021			6-Aug-01		\$0.00			\$20,926,924.00	\$15,167,674.00
P00022	0042	004202	26-Jul-01		\$15,000.00	AQ	<b>\$15,000.00</b>	\$20,926,924.00	\$15,182,674.00
P00024	0009	000902	24-Sep-01		\$400,000.00	AG	\$9,816,416.00	\$20,926,924.00	\$15,582,674.00
P00024	0010		24-Sep-01		\$125,000.00	AG	\$9,941,416.00	\$20,926,924.00	\$15,707,674.00
P00024	0011		24-Sep-01		\$239,695.00	AG	\$10,181,111.00	\$20,926,924.00	\$15,947,369.00
P00024	0012	001201	24-Sep-01		\$55,000.00	AG	\$10,236,111.00	\$20,926,924.00	\$16,002,369.00
P00024	0012	001202	24-Sep-01		\$9,321.00	AR	<b>\$9,321.00</b>	\$20,926,924.00	\$16,011,690.00
P00024	0013		24-Sep-01		\$11,000.00	AG	\$10,247,111.00	\$20,926,924.00	\$16,022,690.00
P00024	0014		24-Sep-01		\$11,000.00	AG	\$10,258,111.00	\$20,926,924.00	\$16,033,690.00
P00025	0048		27-Sep-01	\$319,686.00	\$319,686.00	AK	\$338,257.00	\$21,246,610.00	\$16,353,376.00
P00026	0011		28-Sep-01		\$11,000.00	AG	\$10,269,111.00	\$21,246,610.00	\$16,364,376.00
P00027			12-Oct-01		\$0.00			\$21,246,610.00	\$16,364,376.00
P00028	0009	000902	6-Nov-01	\$1,171,737.00	\$142,031.00	AG	\$10,411,142.00	\$22,418,347.00	\$16,506,407.00
P00028	0010		6-Nov-01	\$30,008.00	<b>(\$130,484.00)</b>	AG	\$10,280,658.00	\$22,448,355.00	\$16,375,923.00
P00028	0011		6-Nov-01		\$0.00	AG	\$10,280,658.00	\$22,448,355.00	\$16,375,923.00
P00028	0012	001201	6-Nov-01		\$11,313.00	AG	\$10,291,971.00	\$22,448,355.00	\$16,387,236.00
P00028	0013		6-Nov-01	\$2,788.00	<b>(\$11,430.00)</b>	AG	\$10,280,541.00	\$22,451,143.00	\$16,375,806.00
P00028	0014		6-Nov-01	\$2,788.00	<b>(\$11,430.00)</b>	AG	\$10,269,111.00	\$22,453,931.00	\$16,364,376.00
P00030	0002	000203	29-Nov-01	<b>(\$14,281.00)</b>	<b>(\$14,281.00)</b>	AG	\$10,254,830.00	\$22,439,650.00	\$16,350,095.00

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00030	0009	000903	29-Nov-01		\$539,000.00	AS	\$539,000.00	\$22,439,650.00	\$16,889,095.00
P00030	0010		29-Nov-01		(\$1,349,659.00)	AG	\$8,905,171.00	\$22,439,650.00	\$15,539,436.00
P00030	0010	001001	29-Nov-01		\$1,349,659.00	AG	\$10,254,830.00	\$22,439,650.00	\$16,889,095.00
P00030	0010	001002	29-Nov-01		\$224,000.00	AS	\$763,000.00	\$22,439,650.00	\$17,113,095.00
P00030	0011		29-Nov-01		(\$625,591.00)	AG	\$9,629,239.00	\$22,439,650.00	\$16,487,504.00
P00030	0011	001101	29-Nov-01		\$625,591.00	AG	\$10,254,830.00	\$22,439,650.00	\$17,113,095.00
P00030	0011	001102	29-Nov-01		\$104,741.00	AS	\$867,741.00	\$22,439,650.00	\$17,217,836.00
P00030	0012	001201	29-Nov-01		\$14,281.00	AG	\$10,269,111.00	\$22,439,650.00	\$17,232,117.00
P00030	0012	001203	29-Nov-01		\$9,459.00	AS	\$877,200.00	\$22,439,650.00	\$17,241,576.00
P00030	0013		29-Nov-01		(\$119,839.00)	AG	\$10,149,272.00	\$22,439,650.00	\$17,121,737.00
P00030	0013	001301	29-Nov-01		\$119,839.00	AG	\$10,269,111.00	\$22,439,650.00	\$17,241,576.00
P00030	0013	001302	29-Nov-01		\$19,900.00	AS	\$897,100.00	\$22,439,650.00	\$17,261,476.00
P00030	0014		29-Nov-01		(\$119,839.00)	AG	\$10,149,272.00	\$22,439,650.00	\$17,141,637.00
P00030	0014	001401	29-Nov-01		\$119,839.00	AG	10,269,111.00	\$22,439,650.00	\$17,261,476.00
P00030	0014	001402	29-Nov-01		\$19,900.00	AS	917,000.00	\$22,439,650.00	\$17,281,376.00
P00031	0009	000903	8-Jan-02		\$653,359.00	AS	1,570,359.00	\$22,439,650.00	\$17,934,735.00
P00031	0010	001002	8-Jan-02		\$277,112.00	AS	1,847,471.00	\$22,439,650.00	\$18,211,847.00
P00031	0011	001102	8-Jan-02		\$79,668.00	AS	1,927,139.00	\$22,439,650.00	\$18,291,515.00
P00031	0012	001201	8-Jan-02		(\$112,473.00)	AG	10,156,638.00	\$22,439,650.00	\$18,179,042.00
P00031	0012	001203	8-Jan-02		\$112,473.00	AS	2,039,612.00	\$22,439,650.00	\$18,291,515.00
P00031	0013	001302	8-Jan-02		\$23,694.00	AS	2,063,306.00	\$22,439,650.00	\$18,315,209.00

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00031	0014	001402	8-Jan-02		\$23,694.00	AS	2,087,000.00	\$22,439,650.00	\$18,338,903.00
P00031	0049	004901	8-Jan-02	\$112,473.00	\$112,473.00	AG	10,269,111.00	\$22,552,123.00	\$18,451,376.00
P00031	0049	004902	8-Jan-02	\$20,000.00	\$20,000.00	AS	2,107,000.00	\$22,572,123.00	\$18,471,376.00
P00023	0051		25-Jan-02	\$532,000.00	\$532,000.00	AU	532,000.00	\$23,104,123.00	\$19,003,376.00
P00032	0050		6-Feb-02	\$7,000.00	\$7,000.00	AT	7,000.00	\$23,111,123.00	\$19,010,376.00
P00033	0009	000903	13-Feb-02		\$1,832,997.00	AS	\$3,919,997.00	\$23,111,123.00	\$20,843,373.00
P00033	0010	001002	13-Feb-02		\$627,200.00	AS	\$4,547,197.00	\$23,111,123.00	\$21,470,573.00
P00033	0010	001003	13-Feb-02		\$130,000.00	AW	130,000.00	\$23,111,123.00	\$21,600,573.00
P00033	0011	001102	13-Feb-02	\$223,178.00	\$223,178.00	AS	\$4,770,375.00	\$23,334,301.00	\$21,823,751.00
P00033	0012	001202	13-Feb-02		(\$9,321.00)	AR	\$0.00	\$23,334,301.00	\$21,814,430.00
P00033	0012	001203	13-Feb-02		\$9,321.00	AS	\$4,779,696.00	\$23,334,301.00	\$21,823,751.00
P00033	0013	001302	13-Feb-02		\$68,125.00	AS	\$4,847,821.00	\$23,334,301.00	\$21,891,876.00
P00033	0014	001402	13-Feb-02		\$68,125.00	AS	\$4,915,946.00	\$23,334,301.00	\$21,960,001.00
P00033	0049	004902	13-Feb-02	(\$6,946.00)	(\$6,946.00)	AS	\$4,909,000.00	\$23,327,355.00	\$21,953,055.00
P00033	0052	005201	13-Feb-02	\$73,761.00	\$73,761.00	AV	\$73,761.00	\$23,401,116.00	\$22,026,816.00
P00033	0052	005202	13-Feb-02	\$9,321.00	\$9,321.00	AR	9,321.00	\$23,410,437.00	\$22,036,137.00
P00034	0053	005301	29-Mar-02	\$356,146.00	\$356,146.00	AK	694,403.00	\$23,766,583.00	\$22,392,283.00
P00034	0053	005302	29-Mar-02	\$30,969.00	\$30,969.00	AX	30,969.00	\$23,797,552.00	\$22,423,252.00
P00035	0009	000903	25-Apr-02		\$907,783.00	AS	\$5,816,783.00	\$23,797,552.00	\$23,331,035.00
P00035	0010	001002	25-Apr-02		\$377,637.00	AS	\$6,194,420.00	\$23,797,552.00	\$23,708,672.00
P00035	0013	001302	25-Apr-02		\$33,540.00	AS	\$6,227,960.00	\$23,797,552.00	\$23,742,212.00

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00035	0014	001402	25-Apr-02		\$33,540.00	AS	\$6,261,500.00	\$23,797,552.00	\$23,775,752.00
P00035	0052	005201	25-Apr-02	\$25,835.00	\$25,835.00	AV	\$99,596.00	\$23,823,387.00	\$23,801,587.00
P00036	Admin- Fix Fund Cite		25-Apr-02					\$23,823,387.00	\$23,801,587.00
P00037	0012	001201	31-May-02		\$6,496.00	AG	\$10,275,607.00	\$23,823,387.00	\$23,808,083.00
P00037	0012	001203	31-May-02		(\$6,946.00)	AS	\$6,254,554.00	\$23,823,387.00	\$23,801,137.00
P00037	0012	001203	31-May-02		\$450.00	AS	\$6,255,004.00	\$23,823,387.00	\$23,801,587.00
P00037	0049	004901	31-May-02		(\$6,496.00)	AG	10,269,111.00	\$23,823,387.00	\$23,795,091.00
P00037	4902	004902	31-May-02	\$450.00	\$6,946.00	AS	6,261,950.00	\$23,823,837.00	\$23,802,037.00
P00038	0054	0054		\$590,000.00	\$590,000.00	AY	590,000.00	\$24,413,837.00	\$24,392,037.00
P00039	0006	00602	25-Jul-02	(\$4,311.57)	(\$4,311.57)	AG	10,264,799.43	\$24,409,525.43	\$24,387,725.43
P00039	0042		25-Jul-02	\$0.00	\$0.00			\$24,409,525.43	\$24,387,725.43
P00039	0045		25-Jul-02	(\$1,000.00)	(\$1,000.00)	AM	0.00	\$24,408,525.43	\$24,386,725.43
P00039	0050		25-Jul-02	(\$5,000.00)	(\$5,000.00)	AT	2,000.00	\$24,403,525.43	\$24,381,725.43
P00040	0015	001501	28-Jun-02	\$5,973,639.00	\$526,371.00	AS	\$6,788,321.00	\$30,377,164.43	\$24,908,096.43
P00040	0015	001502	28-Jun-02		\$789,995.00	AZ	\$789,995.00	\$30,377,164.43	\$25,698,091.43
P00040	0016	001601	28-Jun-02	\$2,962,830.00	\$329,111.00	AS	\$7,117,432.00	\$33,339,994.43	\$26,027,202.43
P00040	0016	001602	28-Jun-02		\$323,889.00	AZ	1,113,884.00	\$33,339,994.43	\$26,351,091.43
P00040	0017		28-Jun-02	\$810,000.00	\$432,793.00	AS	\$7,550,225.00	\$34,149,994.43	\$26,783,884.43
P00040	0018		28-Jun-02	\$190,000.00	\$95,000.00	AS	\$7,645,225.00	\$34,339,994.43	\$26,878,884.43
P00040	0049	004902	28-Jun-02	(\$20,000.00)	(\$20,000.00)	AS	7,625,225.00	\$34,319,994.43	\$26,858,884.43
P00041	0055		12-Aug-02	\$20,000.00	\$20,000.00	BA	20,000.00	\$34,339,994.43	\$26,878,884.43

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00042			13-Aug-02		\$0.00			\$34,339,994.43	\$26,878,884.43
P00043			13-Aug-02		\$0.00			\$34,339,994.43	\$26,878,884.43
P00044	0056		11-Sep-02	\$20,000.00	\$20,000.00	BB	20,000.00	\$34,359,994.43	\$26,898,884.43
P00045	0044		12-Sep-02	(\$7,000.00)	(\$7,000.00)	AF	280,000.00	\$34,352,994.43	\$26,891,884.43
P00045	0057		12-Sep-02	\$7,000.00	\$7,000.00	AF	287,000.00	\$34,359,994.43	\$26,898,884.43
P00046	0015	001501	16-Sep-02		\$1,570,925.00	AS	\$9,196,150.00	\$34,359,994.43	\$28,469,809.43
P00046	0016	001601	16-Sep-02		\$779,000.00	AS	\$9,975,150.00	\$34,359,994.43	\$29,248,809.43
P00046	0018		16-Sep-02		\$3,000.00	AS	\$9,978,150.00	\$34,359,994.43	\$29,251,809.43
P00047	0058		27-Sep-02	\$343,484.00	\$343,484.00	AX	374,453.00	\$34,703,478.43	\$29,595,293.43
P00048	0052	005201	24-Sep-02	\$14,205.00	\$14,205.00	AV	113,801.00	\$34,717,683.43	\$29,609,498.43
P00049	0015	001501	27-Sep-02		\$48,000.00	AS	\$10,026,150.00	\$34,717,683.43	\$29,657,498.43
P00049	0016	001601	27-Sep-02		\$24,000.00	AS	\$10,050,150.00	\$34,717,683.43	\$29,681,498.43
P00049	0017		27-Sep-02		\$95,000.00	AS	\$10,145,150.00	\$34,717,683.43	\$29,776,498.43
P00049	0018		27-Sep-02		\$5,200.00	AS	\$10,150,350.00	\$34,717,683.43	\$29,781,698.43
P00050			30-Sep-02		\$0.00			\$34,717,683.43	\$29,781,698.43
P00051	0015	001503	14-Nov-02		\$655,500.00	BC	\$655,500.00	\$34,717,683.43	\$30,437,198.43
P00051	0016	001603	14-Nov-02		\$325,000.00	BC	\$980,500.00	\$34,717,683.43	\$30,762,198.43
P00051	0017		14-Nov-02		(\$527,793.00)	AS	\$9,622,557.00	\$34,717,683.43	\$30,234,405.43
P00051	0017	001701	14-Nov-02		\$527,793.00	AS	\$10,150,350.00	\$34,717,683.43	\$30,762,198.43
P00051	0017	001702	14-Nov-02		\$118,500.00	BC	\$1,099,000.00	\$34,717,683.43	\$30,880,698.43
P00051	0018		14-Nov-02		(\$103,200.00)	AS	\$10,047,150.00	\$34,717,683.43	\$30,777,498.43

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00051	0018	001801	14-Nov-02		\$103,200.00	AS	10,150,350.00	\$34,717,683.43	\$30,880,698.43
P00051	0018	001802	14-Nov-02		\$11,000.00	BC	\$1,110,000.00	\$34,717,683.43	\$30,891,698.43
P00052	0015	001503	24-Dec-02	\$1,794,168.00	\$1,115,000.00	BC	\$2,225,000.00	\$36,511,851.43	\$32,006,698.43
P00052	0016	001603	24-Dec-02	\$226,462.00	\$150,000.00	BC	\$2,375,000.00	\$36,738,313.43	\$32,156,698.43
P00052	0018	001802	24-Dec-02		\$5,000.00	BC	\$2,380,000.00	\$36,738,313.43	\$32,161,698.43
P00053	0059		3-Feb-03	\$5,000.00	\$5,000.00	BD	\$5,000.00	\$36,743,313.43	\$32,166,698.43
P00053	0060		3-Feb-03	\$2,500.00	\$2,500.00	BE	2,500.00	\$36,745,813.43	\$32,169,198.43
P00054			13-Jan-03		\$0.00			\$36,745,813.43	\$32,169,198.43
P00055	0015	001503	4-Feb-03		\$965,000.00	BC	\$3,345,000.00	\$36,745,813.43	\$33,134,198.43
P00055	0016	001603	4-Feb-03		\$397,300.00	BC	\$3,742,300.00	\$36,745,813.43	\$33,531,498.43
P00055	0018	001802	4-Feb-03		\$17,700.00	BC	\$3,760,000.00	\$36,745,813.43	\$33,549,198.43
P00056	Admin - Correct Pr		27-Feb-03		\$0.00			\$36,745,813.43	\$33,549,198.43
P00057	0015	001503	20-Mar-03		\$1,808,693.00	BC	\$5,568,693.00	\$36,745,813.43	\$35,357,891.43
P00057	0016	001603	20-Mar-03		\$743,000.00	BC	\$6,311,693.00	\$36,745,813.43	\$36,100,891.43
P00057	0017	001702	20-Mar-03		\$163,707.00	BC	\$6,475,400.00	\$36,745,813.43	\$36,264,598.43
P00057	0018	001802	20-Mar-03		\$53,100.00	BC	\$6,528,500.00	\$36,745,813.43	\$36,317,698.43
P00058	0059		11-Apr-03	\$5,000.00	\$5,000.00	BD	10,000.00	\$36,750,813.43	\$36,322,698.43
P00059	0061	006101	30-Apr-03	\$298,000.00	\$298,000.00	AX	9,494,150.00	\$37,048,813.43	\$36,620,698.43
P0059	0061	006102	30-Apr-03	\$74,359.00	\$74,359.00	BF	74,359.00	\$37,123,172.43	\$36,695,057.43
P00060	0015	001503	30-Apr-03		\$288,323.00	BC	\$6,816,823.00	\$36,750,813.43	\$36,983,380.43
P00060	0016	001603	30-Apr-03		\$117,992.00	BC	6,934,815.00	\$36,750,813.43	\$37,101,372.43

Funding Recapitulation by ACRN  
6/9/2003

Section J  
Attachment 8

P0000#	CLIN	SubCLIN/ Info SubLine	Date	CLIN Value Change	CLIN Obligation Amount	ACRN	Cumulative ACRN Total	Cumulative Contract Value Total	Cumulative Contract Obligation Total
P00062	0062			\$263,000.00	\$263,000.00	BG	<b>\$263,000.00</b>	\$37,013,813.43	\$37,364,372.43

**COMMERCIAL ITEM DESCRIPTION**

Air Force Plant 42, Palmdale, CA

19 June 2003

**TRUCK, TANK, AIRCRAFT REFUELING, 6000 GALLON, A/S32R-11**

Air Force Plant 42, Palmdale, California is seeking proposals for the vehicle described below. Plant 42 is an Aircraft Production and flight Test Installation located in the High Desert of Los Angeles County, with an elevation of 2,543 feet above sea level. Climate is semi-arid desert with high winds most of the year. Problems are the blowing winds, sand and dust that get into areas, which may cause damage to equipment or instruments.

**1. SCOPE**

1. Scope. This specification covers the requirements for one type of aircraft refueling tank truck capable of fueling and defueling military and commercial aircraft on Government installations worldwide. The truck is road legal for transport of fuel.

**2. APPLICABLE DOCUMENTS**

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

**2.2 Government documents.**

2.2.1 Specifications, standards, and handbooks. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

**SPECIFICATIONS****FEDERAL**

A-A-393 Extinguisher, Fire, Dry Chemical (Hand Portable)  
A-A-50696 Reels, Static Discharge, Grounding, 75 Foot Cable Length  
A-A-50271 Plate, Identification  
A-A-59326 Coupling Half, Quick Disconnect, Cam locking Type

DEPARTMENT OF DEFENSE

MIL-DTL-5624 Turbine Fuel, Aviation, Grade JP-8  
MIL-N-5877 Nozzle, Pressure Fuel Servings, Locking, Type D-1  
Nominal 2 ½ Inch Diameter  
MIL-DTL-25524 Turbine Fuel, Aviation, Thermally Stable  
MIL-A-25896 Adapter, Pressure Fuel Servicing, Nominal 2.5 Inch Diameter  
MIL-C-46168 Coating, Alphaic Polyurethane, Chemical Agent Resistant  
MIL-C-53039 Coating, Alphaic Polyurethane, Single Component, Chemical  
Agent Resistant  
MIL-DTL-83133 Turbine Fuels, Aviation, Kerosene Types, NATO F-34(JP-8),  
NATO F-35, and JP-8+100

STANDARDS

FEDERAL

FED-STD-297 Rust proofing of Commercial (Nontactical) Vehicles  
FED-STD-595 Colors  
FED-STD-807 Trucks and Truck Tractors: Heavy Commercial 6X4 & 6X6,  
18,000 to 30,000 KG (40,000 to 60,000 LBS) GVW

DEPARTMENT OF DEFENSE

MIL-STD-461 Requirements for the Control of Electromagnetic Interference  
Emissions and Susceptibility  
MIL-STD-810 Environmental Test Methods and Engineering Guidelines

HANDBOOKS

DEPARTMENT OF DEFENSE

MIL-HDBK-1223 Nontactical Wheeled Vehicle Treatment, Painting,  
Identification Marking and Data Plate Standards  
MIL-HDBK-1791 Internal Aerial Delivery in Fixed Wing Aircraft

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

TECHNICAL MANUALS

TO 36-1-191 Technical and Managerial Reference for Motor Vehicle  
Maintenance

## DRAWINGS

MS24484          Adapter, Pressure Fuel Servicing, Nominal 2.5 Inch Diameter

## LAWS AND REGULATIONS

Code of Federal Regulations

Title 29: Labor, Section XVII Occupational Safety and Health Administration  
(OSHA) Parts 1900-1999

Title 49: Transportation

(The Code of Federal Regulations (CFR) is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

(Copies of Government documents required by the contractor in connection with this acquisition function should be obtained from or as directed by the contracting activity.)

**2.3 Non-Government publications.** The following documents form a part of this document to the extent specified herein. Unless otherwise indicated, the issues of the documents which are DoD adopted are those listed in the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation.

### AMERICAN PETROLEUM INSTITUTE (API)

API RP 1004	Bottom Loading and Vapor Recovery for MC-306 Tank Motor Vehicles
API BULL 1529	Aviation Fueling Hose
API PUBL 1581	Specification and Qualification Procedures for Aviation Jet Fuel Filter Separators
API RP 2003	Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents

(Copies are available from the American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005.)

### AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME Boiler and Pressure Vessel Code

Section IX    Welding Qualifications

(Copies are available from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017.)

**AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

D3240 Standard Test Method for Undissolved Water in Aviation Turbine Fuels

(copies are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

**AMERICAN WELDING SOCIETY (AWS)**

B2.1-84 Standard for Welding Procedure and Performance Qualification

(Copies are available from the American Welding Society, 2501 NW Seventh Street, Miami, FL 33125.)

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**

NFPA 385 Tank Vehicles for Flammable and Combustible Liquids

NFPA 407 Aircraft Fuel Servicing

(Copies are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.)

**SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)**

SAE J447 Prevention of Corrosion of Motor Vehicle Body and Chassis Components

SAE J534 Lubrication Fittings

SAE J682 Rear Wheel Splash and Stone Throw Protection

SAE J695 Turning Ability and Off Tracking

SAE J821 Electrical System for Construction and Industrial Machinery

SAE J833 Human Physical Dimensions

SAE J925 Minimum Service Access Dimensions for Off-Road Machines

SAE J1099 Technical Report on Fatigue Properties

SAE APR1247 General Requirements for Aerospace Ground Support Equipment Motorized and Nonmotorized

(Copies are available from the Society of Automotive Engineers, 400 Commonwealth Dr, Warrendale, PA 15096.)

2.4 Order of precedence. In the event there is a conflict between the text of this document and the references cited herein, the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document,

however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 First article. When specified (see 6.2), sample(s) shall be subject to first article inspection in accordance with 4.2.

3.2 Materials. The truck, components, and all materials shall be selected based on the defined purpose for the specified service life at the environmental extremes stated herein. Materials shall be certifiable for the application. Proprietary materials or processes shall not be used. Components shall not be used outside their published ratings.

3.2.1 Prohibited materials. Magnesium alloys, wood products, PVC, polyester, RTV (yielding acetic acid), or asbestos shall not be used in any component or assembly for this truck.

3.2.2 Recycled materials. To the maximum extent, recovered materials shall be used for fabrication of this truck, without affecting the intended use. Used or rebuilt parts shall not be defined as recovered materials.

3.2.3 Fungus proof materials. Where possible, materials used to construct this truck shall not be nutrients for fungi.

3.2.4 Metals. Aluminum materials shall be anodized, except for tanks. Copper based materials shall not come in direct contact with fuel, except within components certified for use with the fuels listed herein.

3.2.5 Impregnation of castings. Aluminum castings may be impregnated to prevent weeping.

3.2.6 Galvanic Corrosion. Avoid the use of combinations of metals that are widely separated in the galvanic series, as defined by SAE J447.

3.2.7 Elastomers. Elastometric materials shall be certified compatible with all fuels specified herein.

3.2.8 Protective treatment. Coatings subject to failure at the extremes specified herein shall not be used.

3.3 Design and construction. The truck shall receive, transport, store, and pump turbine and jet fuels, and all other types of commercial and military use diesel. The truck shall withstand conditions incidental to operation, shipping and storage, at the environmental extremes specified herein. The truck cab and chassis, and the refueling systems components shall be selected, and verifiable by shock dynamic and finite element

analysis (FEA) and strain gauge testing, for a design service life of not less than 15 years. Service life applies to the truck frame and driveline, cab body, cargo tank, piping, wiring, and the like, which shall not require periodic rebuilds to attain. Unless otherwise specified, SAE ARP 1247 requirements for aerospace ground support equipment, as applicable to a refueling truck, shall apply.

3.3.1 Human engineering. All system operations, servicing, and maintenance functions shall be configured to be accomplished by a range of personnel from a fifth percentile female to a ninety fifth percentile male in accordance with human engineering design criteria of SAE J833.

3.3.2 Controls. The range of control positions of any device shall not obstruct the range of control positions of another device. Bearings shall be installed at each location where there is relative rotation between two parts.

3.3.3 Servicing provisions. Special tools shall not be required to access drains, lubrication, or service checkpoints.

3.3.4 Foolproofness. Component design, by shape or by mounting pattern, shall prevent improper installation.

3.3.5 Foreign Object Damage (FOD). Any metal cap, plug, pin, or plate, which must be removed for inspection, service or operation, shall be retained by wire rope lanyard or chain, so it cannot become separated from the truck.

3.3.6 Bonding. All metal components shall be bonded in accordance with the guidelines of API RP 2003. A braid, with less than 10 ohms resistance, shall be attached to all systems drains as a bonding point for the drain bucket.

3.3.7 Prevention of static electricity. Fuel shall not be required to spray or free fall into or out of the cargo tank during operation or servicing. Nonmetallic components shall be certified to a resistance of 108 ohms/in<sup>2</sup> or less.

3.3.8 Lubrication. Lubrication fittings shall conform to SAE J534. Grease seals shall include pressure relief devices to prevent damage. Extended lubrication fittings may be used to overcome accessibility problems. A lubrication data plate (see 3.24.2) shall identify every lubrication fittings on the truck, with the type and grade of lubricant required for all operational temperatures.

3.3.9 Fastening devices. Threaded fasteners shall include prevention for the loss of torque, while allowing for disassembly. An assembly torque shall be specified for all threaded fasteners. Internal threads of aluminum components shall withstand not less than twenty fastener installation cycles to required torque. Adhesive backed wiring supports shall not be used.

3.3.9.1 Permanent fasteners. Permanently fastened overlapping surfaced shall be sealed. Rivet selection shall be for a minimum joint strength. Rivet heading shall be consistent with published data for a matching application.

3.3.10 Welders and welding. Welders shall be certified as specified in B2.1-84, Standard qualification Procedure of the American Welding Society, and Section IX, Welding Qualifications of the ASME.

3.3.11 Workmanship. The truck and all components shall be constructed and finished in a workmanlike manner. Particular attention shall be given to: dimensional accuracy; elimination of sharp edges and burrs; alignment; welding; attaching fasteners; wiring; surface preparation, and finish.

3.4 System safety analysis. A System Safety Analysis (SSA) shall establish the risk levels associated with the fueling systems. A Subsystem Hazard Analysis (SSHA) shall include, in industry terms, a Failure Mode Effects and Criticality Analysis (FMECA). The SSHA shall include pumping, bottom loading, venting, the controls systems, and the chassis interfaces. The SSA shall also include methods for controlling any identified hazard.

3.5 Reliability. A reliability analysis shall be performed for the fueling system design. Design reliability shall be demonstrable in terms of Mean Time Between Failure (MTBF) and Mean Time Between Critical Failure (MTBCF). A test cycle shall validate both MTBF and MTBCF.

Reliability terms shall be defined as:

- a. FAILURE: The event, or inoperable state, where any part does not, or would not, perform as specified.
- b. CRITICAL FAILURE: A failure, or combination of failures, that obstructs or prevents loading, storing and transporting fuel, or from fueling or defueling an aircraft.
- c. MTBF: A measure of reliability of repairable items. The mean number of life units during which all system component parts shall perform within their specified limits, at the extreme conditions stated herein.
- d. MTBCF: A measure of mission reliability. The mean number is the total mission time, divided by the number of critical failures during a stated series of missions.

3.6 Maintainability. Maintainability shall be a consideration in the design of the fueling systems. Except for daily operational inspections, maintenance will be performed by trained mechanics. Maintainability shall be a measure of the time required to accomplish defined tasks. The maintainability design objective shall include the following:

- a. Service access clearances while wearing arctic mittens and clothing, as specified in ASE J925.
- b. No requirement to disconnect or remove components to gain access to other components.
- c. Specialized hand tools, shop equipment, and custom tools, if necessary, be provided with every truck to service or repair any part of the fueling systems or a sub-system.
- d. At one task time limit of eight hours for any item in the fueling systems, such as: a filter elements change; a PTO, a pump, a hose reel, or a fueling hose replacement; and the like.
- e. A 15 minute time limit for one person to perform all daily inspection and service tasks, including, but not limited to: inspection for leaks; checking brakes, steering, horn, lights, engine, transmission, and PTO, drive belts; adjusting lubricants, coolant, hydraulic and windshield washer fluid levels, and tire pressure.
- f. Provisions for quick disconnects in hydraulic and pneumatic lines, and in electrical harnesses.
- g. A nominal 400-hour interval for scheduled maintenance during normal operational conditions. Normal conditions are defined as between 0°F and 100°F, at any humidity, no blowing dust, and no salt fog.
- h. Scheduled maintenance intervals of not less than 24 operating hours at any environmental condition.
- i. Selection of wear items for minimum of 2,400 hours of normal operation.

### **3.7 Performance.**

**3.7.1 Environmental conditions.** All truck systems and all fueling systems shall store, start, and operate under the following environmental conditions:

- a. Full time exposure to temperatures ranging from -40 to +125°F.
- b. Full time exposure to a relative humidity of 100 percent.
- c. Part-time (5%) exposure to salt fog; five percent salt solution with fallout of 3.0 m/80cm<sup>2</sup>/hr.
- d. Part-time (5%) exposure to blowing dust; velocity 1,750 ft/min, concentration 2.2 g/m<sup>3</sup>.

**3.7.2 Pumping system operation.** The system shall deliver a minimum of 5,700 gallons of fuel from a single fill of the cargo tank. The system shall flow fuel between zero and the mode selection limit, by manual control of flow (pump speed) and automatic control of pressure. Pressure and flow shall be stable at any operating condition. Maximum flow shall not exceed 625 gallons per minute (GPM) and maximum nozzle pressure shall not exceed 60 pounds per square inch gauge (psig). The pumping system shall:

a. Pump in LOW FLOW mode, from the tank, through the filter system, the meter, and the primary hose or the overwing hose, to the overwing nozzle, at rates up to 100 GPM, or simultaneously at rates up to 200 GPM. After flow is established by throttle setting (pump speed), flow shall be regulated by the demand of the nozzles.

b. Pump in HIGH FLOW mode from the tank, through the filter system, the meter, the primary hose to the single point nozzle, at rates up to 600 GPM against a nozzle pressure of  $50 \pm 5$  psig. After flow is established by throttle setting (pump speed), flow shall be regulated by the demand of the nozzle.

c. Defuel a minimum of 4700 gallons of fuel from an aircraft, with or without the assistance of the aircraft pumps, through the single point nozzle, the primary hose, the filter system, the meter, and into the cargo tank, at constant flow rates up to 175 GPM, until the cargo tank is full. Defuel a ground level tank at flow rates up to 100 GPM, through adapters to the single point nozzle. Defuel an underground tank at flow rates up to 50 GPM, through a 15 foot long, 1 1/2 inch hose, attached to the single point nozzle. An automatic high level shutoff shall stop flow when the tank is full. If a mechanical shutoff is used, a pretest system shall simulate a full tank. If any part of the level control system is not functional, the truck shall not defuel.

**3.7.2.1 Closed discharge.** The pump shall operate at maximum rated pump speed, against a closed discharge for a minimum of 30 minutes without evidence of damage, or overheating.

**3.7.2.2 Dry operation.** The pump shall operate dry at a maximum pump speed for ten minutes without damage.

**3.7.3 Bottom loading system.** The bottom loading system shall accept up to 750 GPM of fuel at 200 psig inlet pressure. An automatic shut-off shall stop flow when the tank is full. If a mechanical shutoff is used, a pretest system shall simulate a full tank. If any part of the level control system is not functional, the truck shall not load.

**3.7.4 Mobility.** The truck, with fully loaded tank, filter system, and piping, shall attain: 55 miles per hour (mph) on a level highway; 40 mph over an unimproved road; and 15 mph over Belgian block paving.

3.7.4.1 Suspension articulation. The fully loaded truck shall negotiate an 8 inch high radius top berm, with 15% approach and departure angles (secondary containment barrier around a fill stand), in a straight pass and mid-way through a minimum radius turn in either direction. There shall be no part failures, interference, bottoming out of a mounting system, or permanent distortion of any portion of the truck, the cargo tank or the pumping system.

### 3.8 Truck Chassis and Cab

3.8.1 Chassis. The truck shall be a standard commercial product conforming to FED-STD 807 for a 6-by-4 chassis with a 2 door cab, Type 1, Class F, as modified to comply with the specific requirements defined herein. A rear air suspension system shall be provided. The wall-to-wall turning diameter, as defined by SAE J695, shall not exceed 106 feet. A fully loaded truck shall be towable from the front with or without the front tires off the ground.

3.8.2 Frame assembly. The truck frame shall withstand the imposed loads of operation under all of the conditions described herein. The frame, less crossmembers and reinforcements, shall have a resisting bending moment (RBM) of each rail of not less than  $[(0.167)(\text{wheelbase})(\text{gross vehicle weight})]$  at the area of maximum depth.

3.8.3 Axles. The commercial load rating of each axle shall exceed the gross imposed load, measured at the ground.

3.8.4 Wheel loading. Wheel loading variation on any axle shall not exceed 2.5 percent of the total axle load, for either curb or gross load conditions. Gross load conditions shall include the fully optioned truck weight, plus the tank, pump and piping systems full of JP-8 fuel, and a crew of two 250-pound operators.

3.8.5 Engine. The truck engine shall provide the necessary power to meet the minimum performance requirements specified herein while operating on JP-8 fuel, as specified in MIL-DTL-83133. A valve, with reset capabilities, in the air supply shall be controlled from the emergency engine shutoff on the pumping control panel (see 3.17.1.6).

3.8.5.1 Engine starting system. The engine shall start within 15 seconds, at temperatures above +40 and 0°F, with the starter motor and non-remote powered started aids. The engine shall start within five minutes, at any temperature between 0° and -40°F, with the starting aids and the additional assistance of a remote powered winterization system.

3.8.5.2 Exhaust pipe and muffler. The truck muffler shall be mounted under and behind the front bumper, with a right side outlet pointing down and forward. The exhaust system shall not extend behind the truck cab.

3.8.6 Transmission. The truck shall be equipped with an automatic transmission.

3.8.7 Power Take-Off (PTO). The fuel delivery system pump shall be driven through a PTO, designed to either move the truck or drive the pump (never both concurrently). The PTO rating shall exceed the greater requirement for power. PTO engagement, from road to pump or from pump to road, shall occur without gear clash or system shock loading. The auxiliary throttle (control panel) shall not operate while the PTO is in road mode and the truck accelerator pedal shall not operate while the PTO is in pump mode. PTO engagement shall be controlled from the driver's seated position and shall not occur unless/until the truck parking brakes are set.

3.8.8 Propeller shafts. The cargo tank and the pumping system shall be protected from any part of a failed propeller shaft. A failed propeller shaft shall not drop to the ground and shall not generate a spark from contact with any restraining device.

3.8.9 Spare wheel and tire assembly. A spare wheel and tier assembly shall be provided with each truck. A mount point on the truck is not required.

3.8.10 Brakes. The truck chassis air system shall be rechargeable from auxiliary air lines, using .25 inch male style quick-disconnect fittings, one located at the front and one at the rear of the truck. A sealed emergency brake interlock override valve shall be mounted inside the cab. Each air reservoir shall have a wire rope operated drain valve.

3.8.11 Electrical System. The truck shall have a 12-volt electrical system.

3.8.11.1 Batteries. The battery box(s) shall be frame mounted and located forward of the back of the cab. If the battery(s) cannot be located forward of the back of the cab, it/they must be on the right side of the truck with the power cables routed within conduit a minimum of six inches forward of the rear of the cab.

3.8.12 Cab. In addition to the cab requirements in FED-STD-807, the cab shall be equipped with: an air filter service indicator; a transmission temperature gauge; heated mirrors; and two switched reading lights for use while seated or while standing at either door during night operations. A separate 15-amp circuit, with breaker, shall be provided in the cab for a purchaser provided radio.

3.8.13 Rear bumper. The truck shall have a rear bumper, with a rolled end design, in compliance with 49CFR178, DOT 406. Stop, tail, and back-up lights, and the license plate holder shall be recessed into the bumper.

3.8.14 Rear Fenders. The truck shall have metal fenders over the rear wheels. The fenders shall support a 250 pound operator at any point that can be stepped on, without permanent deformation. Mud flaps shall be installed at the front and rear of each fender, as specified in SAE J682.

3.8.15 Wheel chock storage container. Containers for two pair of wheel chocks shall be provided on the left side of the truck. Each container shall be not less than 10 inches

wide by 8 inches high by 24 inches deep, with a drainable, smooth interior. One large container may be provided for two sets of wheel chocks.

3.8.16 Lighting and wiring system. In addition to the truck lights, reflectors and wiring required by Federal Motor Carrier Safety Regulations (49CFR 393), the following shall be provided:

3.8.16.1 Pumping compartment lights. The pumping compartment and the control panel shall be illuminated to a minimum level of 50 foot-candles. All controls, instruments, and the meter shall be illuminated. Lamps shall be vapor proof and not in the direct line of sight of the operator. Lights shall be switched from the control panel.

3.8.16. Wiring. Wiring shall conform to SAE standards for low-tension insulated cable and shall be identified by color or number, or both, as specified in SAE J821. All electrical circuits shall be protected by circuit breakers located inside the cab. The circuit breakers shall be accessible to the operator.

3.9 Cargo Tank. The truck shall have a single-compartment cargo tank meeting all requirements of NFPA 385, NFPA 407 and 49CFR178 (DOT 406), with a minimum capacity of 6,000 gallons, plus a minimum three percent expansion space. A fixed indicator, in gallons, shall be visible through the manhole cover. The cargo tank shall have an unobstructed path sloped towards a minimum 12 gallon rear sump. There shall be no metal-to-metal contact between the tank mounting brackets and the truck chassis mounting brackets.

3.9.1 Baffles. Tank baffles shall be approximately equally spaced and shall allow personnel internal access to the entire tank. In the top of all sections, except for the manhole, shall be a capped, minimum three inch, cleaning stub.

3.9.2 Sump drain. The rear sump shall have a minimum 1.5-inch self-closing drain valve. The drain valve shall be directed toward the ground, guarded from damage, and accessible without crawling under the truck.

3.9.3 Manhole. The cargo tank shall have a minimum 20-inch diameter manhole.

3.9.4 Pressure relief. The cargo tank shall be equipped with primary and secondary pressure and vacuum relief systems meeting all of the requirements of 49CFR178(DOT 406). The primary relief shall be not less than two power vents capable of exerting an opening force of 90 pounds, each sized for a fill or discharge rate of 750 GPM. Vent actuating cylinders shall be fail safe, such that the system cannot actuate unless at least one of the vents is fully open. The cargo tank shall also be equipped with at least two auxiliary vents, each sized for a fill or discharge rate of 50 GPM, with all other tank openings closed. All vents shall have covers, separate from the lid, which shall prevent particles larger than 0.01 inches from entering the tank. Vent covers shall deflect any relief down onto the top of the tank. If necessary, additional vents shall prevent a

pressure or vacuum build-up in any baffled section of the tank due to the dynamic movement of fuel during acceleration, braking, or turning.

3.9.5 Catwalk. A catwalk shall span the full length of the top of the cargo tank and the manhole, and include a landing platform for the rear-boarding ladder. The catwalk shall be at least 30 inches wide, support 250 pounds per square foot without permanent deformation, and shall have a drainable surface. The catwalk shall have scuff guards on both sides and shall be equipped with fall protection, as required by 29CFR1910. Handrails, if provided, shall meet the requirements for air transport.

3.9.6 Boarding ladder. A boarding ladder shall access the catwalk from the rear center of the cargo tank. The ladder shall not project behind the rear bumper, and each rung shall support 250 pounds without permanent deformation. A folding step below the rear bumper shall facilitate access to the ladder.

3.10 Pumping compartment. The truck shall have an enclosed pumping compartment between the cab and the cargo tank. Except for the tank to pump piping and the pump, the entire pumping system and hose reel(s) shall be housed within the compartment. All system controls, the meter and the dispensing hoses shall be accessible to a person standing on the ground.

3.10.1.1 Ventilation. The compartment shall provide for natural air circulation and shall not allow the accumulation of fuel vapors. The cab facing wall panel shall not be ventilated. The three remaining side panels shall have full-length louvers/vents near the top, and if necessary, near the bottom, with a combined total free area of not less than six square feet. The compartment floor shall have louvers/vents on each side, with a combined free area of not less than four square feet. Floor louvers/vents shall be guarded from water and debris thrown up by the front tires.

3.10.1.2 Doors. A roll-up door shall be provided on both sides of the compartment. Vertical door openings shall be the maximum possible within the personnel working range. Doors shall latch in the open position. If the open door exceeds six feet above the ground, an assist strap shall be included. Latch handles shall be the full width of the door, operable while wearing artic mittens, and releasable from any point. The left side compartment door shall be wide enough to access to the pumping system controls, the meter, and the servicing hose(s). The right side compartment door shall be wide enough for inspection and service access to the components and controls within.

3.11 Hose Reel. A hose reel, with 70 working feet (from the hose roller guide to the end of the nozzle) of 2½ inch noncollapsible hose shall be installed in the pumping compartment. The hose reel shall include a clutch released drag brake that is adjustable from zero to 50 pounds force to deploy the hose. The hose reel shall also have a manual rewind, with a removable crank handle that stores in the pumping compartment. The hose reel shall be air or electric powered and capable of retracting a fully deployed, fuel filled hose over a paved surface in not more than 45 seconds, against a 15 pound force drag brake setting. The rewind control shall be placed so the

operator can guide the hose with one hand while operating the control with the other. Serviceable rollers shall guide the hose during deployment or rewind. The hose assembly shall be API 1529 approved, Grade 2, Type C, including: non-reattachable corrosion resistant metal couplings, as specified in API 1529 Section 7; and a dry break coupling compatible with the nozzle(s). The hose shall deploy off the top of the reel, with the last 1/2 turn restricted from unwinding. A type D-1 single point nozzle, as specified in MIL-N-5877, shall be attached to the hose with a dry break adapter. The nozzle shall include a 40 mesh stainless steel strainer and an automatic vacuum breaker. When specified (see 6.2), a D-2 single point nozzle shall replace the D-1 single point nozzle. When specified (see 6.2), an OPW model 295AF nozzle, equivalent, overwing nozzle with a dry break hose adapter shall be provided.

3.11.1 Overwing hose reel. When specified (see 6.2), a second fuel dispensing reel and hose, in accordance with the above performance requirements, shall be provided. The reel shall hold a minimum of 60 working feet of 1½ inch noncollapsible hose. The overwing hose shall operate independently of, or simultaneously with, the primary hose, up to the system pumping limit. An OPW model 295AF nozzle, or equivalent, shall be provided. The nozzle shall be attached to the servicing hose with a dry break adapter. Nozzle grounding wires shall be jacketed. When an overwing hose reel is provided, the hose reel isolation valves shall be controlled from the pump panel.

3.12 Deadman Control System. A deadman control system, as specified in NFPA 407 and as specified herein, shall be provided. The system shall stop flow, at the hose reel(s) and at the emergency tank shutoff valve, within three seconds and shall open to full flow within five seconds. The deadman shall be operable while wearing arctic mittens and shall allow the operator to range from the control panel to the full length of the refueling hose(s). Deadman deactivation shall reduce engine speed to idle. If an electrical deadman system is provided, it shall be certified intrinsically safe and incorporate a continuous operator input feature. If a hose reel is used, it shall be air powered and capable of retracting a fully deployed hose within one minute. The hose reel shall have a manual rewind with a removable crank handle that stores in the pumping compartment. A fairlead shall guide the hose during deployment or rewind.

3.13 Static discharge bonding/grounding reels. Two Type I grounding reels, as specified in A-A-50696, shall be installed side-by-side at the rear of the pumping compartment on the left side of the truck. One reel shall have a welder style grip clamp and the other shall have a grounding plug. There shall be no more than 0.5 ohm resistance between either reel and the cargo tank.

3.14 Fire extinguishers. Two Type I, Class 1, Size 20 fire extinguishers, as specified in A-A-393, shall be installed, one on each side of the truck. The extinguishers shall be accessible while standing on the ground and shall be protected from tire splash.

3.15 Pumping system. The fuel pumping system shall include: piping, tank suction header, pump, filter unit, meter, and a control panel. Pumping at 600 GPM at 50± 5 psig for ten continuous hours shall not degrade the system.

3.15.1 Piping. Pipe mounting shall prevent failure due to chaffing, vibration, or movement, due to operational or mobility induced forces. Piping shall be protected when passing through sheet metal and shall be prevented from being used as a step. Pipe and fittings shall be either flange or groove connected, or a combination. Piping shall be not less than schedule 40 and shall disassemble in sections. Coupling grooves in aluminum pipe must be cut. A minimum one inch self-closing drain valve shall be installed at every piping low point. A check valve shall be the first component in each line connected to the cargo tank, and, except for the pump suction line, shall be oriented to prevent flow from the tank. System pressure build-up in the piping and hose(s) shall relieve into the cargo tank.

3.15.2 Tank suction header. The tank suction header shall include: check valve, in-line strainer, shutoff valve, and a dedrumming stub. The suction line shall not originate at the tank sump. The in-line strainer shall be a Y-type, with a serviceable 8-mesh screen, rated for flows of 600 GPM. The suction header shutoff valve shall be a manual, quarter turn design, operable while standing or kneeling on the left side of the truck. The dedrumming stub shall include a dedicated shutoff valve, and a two inch cam lock coupler, with dust plug, in accordance with A-A-59326.

3.15.3 Pump. The pump shall be a self-priming, centrifugal, aircraft fuel-dispensing unit, direct driven by the PTO. Performance shall be met when pumping turbine fuel conforming to MIL-DTL-5624, MIL-DTL-25524, or MIL-DTL-83133. A self-closing manual drain valve shall be installed at the pump housing low point.

3.15.4 Pump discharge shut-off valve. A discharge valve shall be located downstream of the pump prior to any device or branch connection. The valve shall be a manual, quarter turn design, and operable while standing or kneeling on the left side of the truck.

3.15.5 Fuel Filtration System. The filtration system shall be rated for the maximum pump flow and pressure. The filter vessel shall be qualified to the current requirements of the API PUBL 1581 Specification and Qualification Procedures for Aviation Fuel Filter/Separators for Category M100, except the effluent fuel samples shall not exceed 10 parts per million free water content. The filter vessel shall be built in accordance with the ASME Boiler and Pressure Vessel Code and shall be stamped by an ASME inspector. The filter vessel must remain full, regardless of the level of fuel in the cargo tank, during pumping or while taking a sample from the drain. The filter drain shall have a self-closing valve, accessible to an operator standing or kneeling on the ground.

3.15.6 Sampling device. A fuel sampling device shall take samples downstream of the filter system. Space to connect a Millipore Corporation, Bedford, MA 01730, fluid sampling kit, catalog No. XX64 037 30, for solids and water samples shall be provided. The sampling device shall consist of the necessary corrosion resistant piping, a one quarter turn ball valve, and a Snap Tite Inc, part number SVEAC4-4F (JF), quick disconnect, with a Snap Tite Inc, part number AMPE-4 dry break coupler, with a dust plug, for connection to the sampling kit.

3.15.7 Flow Meter. All fuel flow through the filtration system, in or out of the cargo tank, shall be metered. The meter shall be certified accurate to  $\pm 0.1\%$  between 80 and 800 GPM flow. A flow rate indicator, certified accurate to  $\pm 5\%$ , up to 1000 GPM flow, shall be provided. The meter shall be readable from 15 ft distant, day or night.

3.16 Pumping systems controls. Pumping system controls shall provide mode selections for HIGH flow and LOW flow dispensing, and for DEFUEL. Operations for fueling and defueling aircraft shall not require any external sensing devices or equipment, beyond what is referred to herein. Refueling and defueling controls shall be limited to mode selection, vent activation, auxiliary throttle, deadman activation and, when required, isolation valves. After mode selection, manipulations of controls, except for the auxiliary throttle and the deadman, shall not be required. Fuel flow, once pump speed is established manually, shall be automatically regulated by the demand of the nozzle. Pressure shall be internally managed, without atmospheric pressure relief. The system vent control shall operate from the control panel. The pumping system shall not operate with the vent closed.

3.16.1 Control panel. All operations on pumping system control panel shall be accomplished while standing on the ground. The panel shall, as a minimum, contain: mode selector, auxiliary throttle, tachometer, hourmeter, pump pressure gauge, nozzle pressure gauge, differential pressure gauge, tank vent control, compartment and panel light switches, emergency engine shut down, high level shutoff indicator lights, and, when an overwing hose is specified, hose reel isolation valves. Controls shall be grouped by function. Vent controls and hose reel isolation valves shall be of the slide and latch type. The control panel shall be accessible for maintenance from the rear. Any caution notes required on the control panel shall be applied in red color.

3.16.1.1 Selector control. Mode controls shall be fully independent. Multiple mode selections shall not be possible. A failure in one mode shall not cause either an activation or failure of another mode.

3.16.1.2 Auxiliary throttle. An auxiliary throttle, adjustable to within 50 rpms engine speed, shall be used during pumping operations. Maximum rated pump speed shall limit maximum engine speed. The throttle shall hold any speed setting, and shall also provide an emergency return to idle feature.

3.16.1.3 Tachometer. The tachometer shall have a red line to indicate the maximum engine speed for pumping.

3.16.1.4 Pressure gauges. Pump and nozzle pressure gauges shall be identified by function, not less than 4.5 inches in diameter, with contrasting numbers on faces, and shall be certified accurate to within one percent of the scale range. Gauge scales shall be at least 10% greater than any recordable pressure, with graduations not exceeding two psig increments. Gauges shall: have needles damped to minimize oscillations; be vacuum protected; and include a red line to indicate maximum safe operating pressure. The pump pressure gauge shall indicate system pressure upstream of the filter. The

nozzle pressure gauge shall indicate actual pressure, or shall use a system reference point that gives a full range reading within five psig of actual pressure.

3.16.1.5 Differential pressure gauge. A Gammon Technical Products GTP-534-30A0 differential pressure gauge, or equal, shall monitor the psi pressure drop across the filtration media during operation.

3.16.1.6 Emergency engine shutoff. An emergency switch shall shut off the truck engine without the use of any other control. The switch shall be marked by a red circle at least one inch in diameter.

3.16.2 Defuel system. The defuel system shall:

- a. Meter, in positive gallons, and filter fuel before returning it to the cargo tank.
- b. Include an automatic high level shutoff to stop flow when the cargo tank is full, without shutting off the truck engine. If a mechanical high level shutoff is used, a pretest system shall simulate a full cargo tank.
- c. Include a high level override control to allow for system recirculation for sampling purposes. The override control shall be located near the fuel sampling device connections. The override control shall be securable in the off position with a (pad)lock device. The override control shall not open with the lock installed. The padlock will be provided by the purchaser.

3.16.3 Adjustable valves. All adjustable valves in the pumping system shall be operable, while standing on the ground, in full view of the control panel gauges during adjustments. Unauthorized adjustments shall be prevented.

3.17 Flow and Pressure Control System. Controls shall consist of the necessary valves, pilot valves, manual and automatic selectors, venturi(s), gauges, and safety devices necessary to regulate pressure and flow.

3.17.1 Flow Control system. The flow control system shall limit maximum flow rates, based on the selector valve setting, regardless of the engine throttle setting or the downstream pressure drop.

3.17.2 Pressure control system. The pressure control system shall limit single point discharge nozzle pressure to a maximum of 50  $\pm$ 5 psig at any flow rate. Pressure surges shall be limited to a maximum of 120 psig at any time, including a one second shutdown at the aircraft. Any surge pressure developed shall not exceed the pressure rating of a single component in the system. The controls shall respond to pressures at the discharge nozzle or to a simulated nozzle pressure. Locked-in pressure shall not exceed 60 psig, 15 seconds after flow stops. The system shall automatically recover from an induced no-flow condition to full flow within 15 seconds.

3.17.3 System bypass. Providing that a bypass system is used to relieve excess pump pressure under flow conditions, the bypass shall be upstream of the filter system and shall terminate in the cargo tank. The bypass system shall not be used for any purpose other than as a safety pressure relief.

3.17.4 . Providing that a bypass system is used to relieve excess pump pressure under flow conditions, the bypass shall be upstream of the filter system and shall terminate in the cargo tank. The bypass system shall not be used for any purpose other than as a safety pressure relief.

3.17.4 Safety provisions. Each pumping system valve or control, including the auxiliary throttle, shall be protected from the improper setting of any other valve or control in the system, or from exceeding 60 psig at the single-point nozzle. Nonadjustable pressure protection device(s) shall prevent normal maximum operating pressures from being exceeded by more than 10 psig. A sequence of system valve and control adjustments shall be established to restore normal operational settings from any combination of miss-adjustments.

3.18 Pumping operation sound levels. The maximum A-weighted sound levels produced during pumping operations shall not exceed 84 dBA at the operator's location, in front of the system control panel.

3.19 Bottom loading system. The truck shall be equipped with an independent automatic bottom loading and vent system. The loading system shall use truck chassis air for power. All loading components and control lines shall be external to the cargo tank. The loading connections and controls shall be located at the left side of the cargo tank, in front of the rear bumper. The controls shall be protected from the elements. Components shall include: a control panel; inlet manifold, with single point receptacle, loading valve, and manual shutoff valve; high level shutoff controls; vent controls; and, when specified (see 6.2), vapor recovery. The vent system shall be automatically activated by connection to the inlet receptacle. The vent shall be interlocked to activate only after the truck parking brakes are set. Fuel shall not flow in or out of the cargo tank until the vent is fully open and shall stop flowing within 15 seconds if the vent closes. Instructions and diagram plates shall be mounted on or adjacent to the control panel.

3.19.1 Inlet manifold. The inlet manifold shall connect the inlet receptacle to the cargo tank and shall be vented into the cargo tank. The bottom loading system shall operate with fuel stand pressures between 15 and 200 psig and shall close within 15 seconds if the pressure drops below 15 psig.

3.19.1.1 Inlet receptacle. The inlet receptacle shall include a housing a specified in MIL-A-25896 and a single-point nozzle adapter and a dust cover as specified in MS24484-2. The adapter shall allow a flow rate of at least 600 GPM, with intermittent rates up to 750 GPM.

3.19.1.2 Manual valve. A manual valve, with not less than eight segmented and latched positions from leak tight closed to full flow open, shall be installed in the bottom loading manifold.

3.19.2 Level control. A level controller shall terminate bottom loading to attain a fuel level within one inch of the set point, at fill rates up to 750 GPM. If a mechanical high level shutoff is used, a pretest system shall simulate a full cargo tank. The set level shall be adjustable to six inches below the 6000 gallon level. The level control shall be compatible with commercial "Scultrol" ST-15 Single Point and ST-35 Multiple Compartment loading rack monitors, or to an equivalent commercial systems by using a socket adapter. If the level control system is not functional, the truck shall not load.

3.19.3 Level control override. The level control system shall include a manual override to allow fuel recirculation through the supply hose(s) and for gravity discharge of the tank contents through the bottom loading manifold. The system shall gravity discharge 5,500 of the 6000 gallon fuel cargo in not more than 55 minutes. The override shall be a hold-to-operate (attended) type. Release of the override shall close the bottom loading valve within 15 seconds.

3.19.4 Vapor recovery system. When specified (see 6.2), a system shall override the vent actuation system and shall remove fuel vapors from the cargo tank during loading. The recovery system shall terminate near the bottom loading connection with a dry break adapter and a dust cap. The system and adapter shall comply with API RP 1004.

3.20 Hydrostatic pressure. The pumping system, bottom loading system, and all components, shall withstand a hydrostatic pressure of 1½ times that maximum design operating pressure. Components, built to a higher test pressure requirement, shall be tested to the higher requirement prior to being assembled into the respective system.

3.21 Electromagnetic interference. The truck shall comply with class C1, Group II requirements of MIL-STD-461, for electromagnetic interference and susceptibility.

### 3.22 Finishes and protective coatings.

3.22.1 Cleaning, painting, plating, anodic films, and chemical treatments. Cleaning, chemical treatments, painting, plating, and films shall be in accordance with best commercial practice. Colors shall be as identified in FED-STD-595 unless otherwise specified.

3.22.2 Paint 1. Unless otherwise specified (see 6.2), except for the tank boarding ladder, all exterior surfaces, all trim, and compartment interior surfaces shall be painted according to attached specifications. The chassis and running gear may be green or black. Driveline and cab components, which are not visible during normal operations with the cab door closed, may be their original color. Markings shall be red, color 31136 with white only.

3.22.3 Paint 2. When specified (see 6.2), except for the tank boarding ladder, all exterior surfaces, all trim, and compartment interior surfaces shall be painted according to attached specifications. The chassis and running gear may be yellow or black. Driveline and cab components, which are not visible during normal operations with the cab door closed, may be their original color. Markings shall be white reflective tape on a red background.

3.22.4 Paint 3. When specified (see 6.2), except for the tank boarding ladder, all exterior surfaces, all trim, and compartment interior surfaces shall be painted according to attached specifications. The chassis and running gear may be green or black. Driveline and cab components, which are not visible during normal operations with the cab door closed, may be their original color. Markings shall be painted black, color 37038.

3.22.5 Paint 4. When specified (see 6.2), except for the tank boarding ladder, all exterior surfaces, all trim, and compartment interior surfaces shall be painted according to attached specifications. Markings shall be painted white color 37875.

3.22.6 Rustproofing. The vehicle chassis and cab shall be rustproofed to a tropical level as specified in FED-STD-297. Rustproofing shall not be applied to the first article units until after approval of the test report.

### 3.23 Markings, data plates and operating instructions.

3.23.1 Markings. The truck shall be marked as specified in MIL-HDBK-1223. Four DOT hazardous material labels, Number 1863, shall be mounted on the vehicle, one on each side of the forward 1/3 of the cargo tank, one on the upper right hand corner of the rear of the tank, and one on the front bumper of the truck.

3.23.2 Data plates and operating instructions. All data plates, placards, charts, diagrams, and instruction plates shall conform to Class 2, Composition C, of A-A-50271. All controls valves, gauges, and operational indicators shall be identified with nameplates. Diagrams of the pumping, electrical, and the bottom loading systems, shall be mounted at their respective control locations, with each component identified to a corresponding nameplate referenced part. Precautionary warnings and operating instructions shall be affixed near the affected system control and shall identify components by their nameplate reference on the diagrams. Tags or decals shall not be used. Temporary nameplates may be used during testing.

3.23.3 Cab nameplate. The cab shall have a mounted nameplate containing the following information inscribed, except for the serial number, vehicle registration number, and date of delivery, which must be stamped.

Serial Number  
Vehicle Registration Number  
Date of Delivery

Make and Model  
National Stock Number  
Contract Number  
Cargo Tank Capacity (Gallons)  
Vehicle Weight, Unloaded (Pounds)  
Gross Vehicle Weight (Pounds)  
Fuel Type  
Oil, Engine, Above 32 Degrees F      SAE Grade  
Oil, Engine, Below 32 Degrees F      SAE Grade

#### 4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. Conformance inspection

4.2 Conformance inspection. Conformance inspection shall include the following criteria.

Vehicle must meet requirements of NFPA 407, DOT 406 and all Federal Motor Carrier Safety Standards. Vehicle body meets the following requirements of Military Purchase Description for Air Force R-11 Refueler Specification.

4.3 The Purchaser shall identify an operational test site of their own choosing.

#### 5 PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible activity to ascertain requisite packaging requirements. Packing requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

#### 6 NOTES

(This section contains information of a general of explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. This truck is intended for use in fuel servicing of all types of aircraft under worldwide conditions.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2).
- c. Packaging requirements (see 5.1).
- d. When first article is required (see 3.1).
- e. When a type D-2 single point nozzle is to be substituted for a D-1 single point nozzle (see 3.11).
- f. When an overwing nozzle with adapter is to be provided (see 3.11).
- g. When an overwing hose reel is to be provided (see 3.11.1)
- h. When a vapor recovery system is to be provided (see 3.20.4).
- i. Finish color required, if not white (see 3.23).
- j. Identification markings required (see 3.24.1).

6.3 Definitions. For the purpose of this specification, the following definitions apply:

6.3.1 Recovered materials. Materials collected and recovered from solid waste and reprocessed to become a source of raw materials, as compared to virgin raw materials.

6.3.2 Self-priming centrifugal pump. A pump, when starting from a flooded suction, that is capable of initiating and sustaining flow, while also being able to free itself of entrapped air without losing prime.

6.3.3 Highway. A paved hard surface public road or equivalent.

6.3.4 Unimproved road. A level-to-rolling graded gravel surface.

6.3.5 Belgian block road. A rough wavy, hard surface. Cobblestones may be substituted.

6.4 Subject term (key word) listing.

Defuel  
Vehicle  
Jet fuel  
Over the wing fueling  
Single point refueling (SPR)  
Aviation fueling  
Mobile